CLAIMS:

1.   Apparatus for creating a substantially DC-controllable channel bitstream based upon a channel code, representative of a modulated signal received via a channel, the apparatus comprising means for receiving data representative of a nominal modulation transfer function or impulse response function of said channel, means for generating a synthetic high frequency signal waveform using said nominal modulation transfer function or impulse response function, means for performing threshold detection in respect of said synthetic high frequency signal waveform to produce intermediate channel bits, and means for computing a running digital sum using said intermediate channel bits.

2.   Apparatus according to claim 1, wherein the code representative of the modulated signal is a run length limited (RLL) code.

3.   Apparatus according to claim 2, wherein the apparatus includes means for performing RLL encoding in respect of a plurality of user bits that are to be encoded.

4.   Apparatus according to claim 3, wherein said RLL encoding ie peformed prior to computation of the running digital sum.

5.   An encoder including apparatus according to any one of claims 1 to 4.

6.   An optical data storage system, comprising an encoder according to claim 5, and a receiver comprising slicer apparatus for performing threshold detection in respect of a high frequency signal waveform derived from a modulated signal to create a digital signal representative thereof.

7.   A system according to claim 6, the receiver further comprising slicer-control means for updating a threshold value in respect of the slicer apparatus in response to changes in said high frequency signal waveform, so as to correct for a DC-offset in said high-frequency signal waveform.

8.   A system according to claim 6 or claim 7, the receiver further including a sequence detector for said high frequency signal waveform.

5   9.   A system according to claim 8, wherein said sequence detector is a Viterbi sequence detector.

10.   A method for creating a substantially DC-controllable channel bitstream based upon a channel code, representative of a modulated signal received via a channel, the method
10   comprising receiving data representative of a nominal modulation transfer function or impulse response function of said channel, generating a synthetic high frequency signal waveform using said nominal modulation transfer function or impulse response function, performing threshold detection in respect of said synthetic high frequency signal waveform to produce intermediate channel bits, and computing a running digital sum using said
15   intermediate channel bits.

11.   A receiver with a slicer apparatus for controlling the DC-level of a received high frequency signal waveform, wherein said slicer apparatus performs threshold decisions in respect of said received high frequency signal waveform, and performs adjustements of the
20   slicer-level in accordance with said threshold decisions, wherein said signal waveform results from a channel bitstream transmitted over the channel, that has been encoded by means of the method of claim 10.